REMARKS

Applicants appreciate the Examiner's thorough review of the present application, and respectfully request reconsideration in light of the preceding amendments and the following remarks.

Claims 1-13 are pending in the application. Claims 1-3 have been amended to better define the claimed invention. Non-elected claims 6-8 have been labeled as "withdrawn." New claims 9-13 has been added to provide Applicants with the scope of protection to which they are believed entitled. The new claims are readable on the elected invention. FIG. 2a has been replaced with FIGs. 2a-2b. The specification has been amended to be consistent with the new figures and the amended claims. The Abstract has been revised to be compliant with commonly accepted US patent practice. No new matter has been introduced through the foregoing amendments.

The objection to the drawings is believed overcome in view of the above amendments. In particular, the original "circles" and "lines" have been labeled as --ceramic powder-- and --polymer--, respectively, and the "oval" has been removed. No further drawing correction is deemed required. However, if the Examiner insists otherwise, would he/she please immediately call the undersigned so that necessary correction satisfying the Examiner's requirement may be timely filed, avoiding a holding of abandonment of the instant application.

The objection to claim 3 is believed overcome in view of the above amendments.

The *35 U.S.C. 112, second paragraph* rejection of claims 1-5 is also believed overcome. Specifically, the original "average molecular weight" has been changed to --weight-average molecular weight--, and "~" has been changed to -- – --. The changes find support in the page 5, line 25 to page 6, line 1, as well as page 11, lines 2-9 of the specification.

The art rejections are traversed for the following reasons.

1. The *35 U.S.C. 102(b)* rejection of claims 1 and 3-5 as being anticipated by *Simpson* (U.S. Patent No. 4,379,109) is noted. Applicants particularly note the Examiner's allegation that "it is inherent that broadly disclosed vol% amounts overlap with the presently claimed amounts in wt%, absent evidence to the contrary." It appears that the Examiner is improperly shifting the burden of proof to Applicants without first having met his/her initial burden of proof by providing "a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic **necessarily** flows from the teachings of the applied prior art." *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis added). *See* also *MPEP*, section 2112. The Examiner has not specified with reasonable clarity how the claimed wt% necessarily flows from the teachings of the applied reference. The anticipatory rejection of claims 1 and 3-5 s therefore inappropriate and should be withdrawn or at least rephrased.

2. The *35 U.S.C. 103(a)* rejection of claims 1-5 as being obvious over *Simpson* is noted. This rejection is traversed because *Simpson* is non-analogous art that cannot be applied against the claims of the instant application in an obviousness rejection. It suffices to note the remote classifications of *Simpson* (**264**/60) and the claimed invention (**524**/413). In fact, *Simpson* is classified in the exact class of non-elected claims 6-7 (Invention II). *See* the Restriction Requirement, paragraph 1. If the Examiner insists that *Simpson* is pertinent to the presently claimed invention, then his/her reason for insisting on restriction is non persuasive as a reference (e.g., *Simpson*) which is classified in the same class as Invention II (method) can be applied against Invention I, apparently without serious burden on the Examiner. Either the *35 U.S.C. 103(a)* rejection or the Restriction Requirement should be withdrawn.

3. The alternative *35 U.S.C. 103(a)* rejection of claims 1 and 3-5 as being obvious over *Simpson* is traversed. The Examiner's allegation that it would have been obvious to optimize the disclosure of dimension to obtain a composition having ingredients in wt% that overlaps with the claimed ranges is insufficient to establish a prima facie case of obviousness. It should be noted that

"a particular parameter must first be recognized as a **result-effective variable**, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation." *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977) discussed in MPEP section 2144.05. II. B (emphasis added). The Examiner has produced no evidence to prove that the art has recognized the claimed wt% as a result-effective variable. *See* the Office Action at page 5, the third full paragraph.

4. The *35 U.S.C. 103(a)* rejection of claim 2 as being obvious over *Simpson* is traversed. Applicants note the Examiner's stated position that the amount of lower molecular weight polyethylene is a result effective variable because changing them will clearly affect the type of the product obtained. There are two flaws in the Examiner's argument. First, it is not clear whether the changed "type of the product obtained" is a recognized result, e.g., if the changed "type of the product obtained" is a unwanted product, no person of ordinary skill in the art would have made the modification. Second, the proper question to be asked in an "optimization" rejection is whether the art, prior to the present invention, has recognized the amount of lower molecular weight polyethylene as a result-effective variable, rather than whether the Examiner a few years later recognizes the lower molecular weight polyethylene amount to be result-effective. The Examiner is kindly asked to provide evidence that the art, prior to the present invention, has recognized that the lower molecular weight polyethylene amount is a result-effective variable, or to withdraw the rejection of claim 2.

For the overwhelming reasons advanced above, Applicants respectfully submit that the art rejections of claims 1-5 are improper and should be withdrawn.

Solely for the purpose of expediting prosecution, Applicants have amended the claims to better define the claimed invention.

As to amended claim 1, the claimed ceramic slurry composition is used for producing a thin

green sheet by extruding the composition into a extruded sheet and stretching the extruded sheet. The characteristics of the claimed invention are to improve interlayer adhesive strength and maximize the draw ratio of the extruded sheet during stretching the extruded sheet by using a polymer having H-bond forming functional groups (referred to as 'H-bond polymer,' hereinafter). However, *Simpson* (U.S. Patent No. 4,379,109) does not teach or suggest such technical characteristics. Further, *Simpson* does not disclose or suggest stretching of the extruded sheet.

Further, the claimed range of ceramic powders in claim 1 is critical as disclosed in the specification, at page 10, lines 15-25. In particular, when the ceramic power is less than 20wt%, the packing density of the final product becomes low and pores are likely to be formed, which cause defects of the final product. When the amount exceeds 50wt%, the relative amount of the polymer is reduced, thus, the strength of the green sheet is weak and forming of the green sheet is difficult. Moreover, since the amount of ceramic powder in the claimed invention is specifically defined considering the extrusion and stretching process, more than 50wt% of ceramic powder cannot be used in the claimed invention.

In addition, the claimed range of the H-bond polymer in claim 1 is critical as disclosed in the specification, at the paragraph bridging pages 12-13. In particular, the effect of the claimed invention, i.e. increased interlayer adhesive strength, principally due to the H-bond polymer and the amount of the H-bond polymer is controlled to 0.1-2wt% in the ceramic slurry composition. If the content of H-bond polymer is less than 0.1wt%, cracks between the green sheet layers are likely to occur and if it exceeds 2wt%, the sheets are difficult to handle because of their increased tackiness. However, *Simpson* does not disclose or suggest the specific amount of the H-bond polymer. The thickening agent, which Examiner considers to correspond to the H-bond polymer of the claimed invention, is used in the amount of 0.5-10wt% in *Simpson*. However the claimed amount of the H-bond polymer is specifically selected considering the functions and effects, thus, 2wt% to 10wt% of the *Simpson* thickening agent's amount cannot not be used in the claimed invention. Based on the

above, the claimed invention cannot be regarded as being anticipated by or obvious over *Simpson.*

As to claim 2, *Simpson* does not disclose or suggest the effect of the claimed combination of a high Mw polymer and a low Mw polymer. Also, the amount of the low Mw polymer and the reference value of high and low Mw polymer of *Simpson's* are different from this invention.

First, according to the claimed invention, the combination of a high molecular weight polymer and a low molecular weight polymer can reduce the repulsive force between electrode layers and improve formability of the green sheet, and the low molecular weight polymer and the H-bond polymer act as a binder to improve stretchability of the high molecular weight polymer.

Plus, high molecular weight polymers arranged in line by stretching, and the crystalling is increased and strength and elasticity are increased with packing. At this time, the low Mw polymers come in between the high Mw polymers to alleviate the degree of packing. Thus, formability of the green sheet is improved by the combination of the high Mw polymer and the low Mw polymer. However, such characteristics are not disclosed or suggested in *Simpson.*

Second, the claimed range of the low Mw polymer in claim 2 is critical as disclosed in the specification, at the paragraph bridging pages 11-12. In particular, considering the effect of the low Mw polymer, the claimed invention specifics the amount of the low Mw polymer to 1-5wt% because if the amount is less than 1wt%, there are risks of interlayer cracks and the pillowing phenomenon occurs due to the repulsive force of the high molecular weight polymer when laminated into multilayers, and if the amount exceeds 5wt%, the strength of the green sheet is weakened.

However, Simpson does not disclose or suggest the specific amount of the low Mw polymer.

Third, in the claimed invention, the high Mw polymer and low Mw polymer are defined by

a weight-average Mw of 400,000. However, *Simpson* discloses that its high Mw polymer has at least 150,000 Mw, which makes some polymers of *Simpson* low Mw polymers according to the claimed invention. Thus, the claimed combination of a high Mw polymer and a low Mw polymer with a H-bond polymer cannot be considered obvious to a person skilled in this art, learning of the disclosure of *Simpson*.

Claims 9-13 depend from claim 1, and are considered patentable at least for the reasons advanced with respect to claim 1. Claims 9-13 are also patentable on their own merits since these claims recite other features of the invention neither disclosed, taught nor suggested by the applied art. For example, claim 9 is further patentable over *Simpson* for the reason advanced with respect to claim 2 from which claim 9 depends. Claims 10-13 are further patentable over *Simpson* because the reference clearly fails to teach or suggest the claimed solvent. *See* e.g., column 3, lines 38-43 of *Simpson*.

Each of the Examiner's rejections has been traversed. Accordingly, Applicants respectfully submit that all claims are now in condition for allowance. Early and favorable indication of allowance is courteously solicited.

The Examiner is invited to telephone the undersigned, Applicant's attorney of record, to facilitate advancement of the present application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 07-1337 and please credit any excess fees to such deposit account.

Respectfully submitted,

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AMENDMENTS TO THE DRAWINGS:

The attached replacement sheet of drawings includes changes to Fig. 2. The replacement sheet, which includes Figs. 2a-2b, replaces the original sheet including Fig. 2.

In particular, original Fig. 2 has been renumbered as FIG. 2b, in which

- legends --polymer--, --ceramic powder--, and --Polymer having H-bonding forming functional groups-- have been added,
- the original legend associated with the "oval" has been changed to --Interlayer adhesive strength increased with H-bond--,
- the "oval" has been removed, and
- an electrode layer and associated legend --Electrode Layer-- has been added to the right side of the figure.

FIG. 2a is new.

Attachment:

- Replacement Sheet